

ABSTRACT

[0037] An apparatus and method for electrochemically etching grooves in a working surface. A frame holds a working surface about an axis and facing a movable electrode movable along the axis. The electrode is axially movable and has a surface carrying a groove pattern to fix on the working surface. A source of electrolyte is pumped at a fixed static pressure rate between the surface of the movable electrode and the working surface. A support fixture is provided for supporting the electrode for movement toward and away from the working surface with minimal frictional restriction. A force biases the electrode surface toward the working surface so that a gap through which the electrolyte flows between the surface of the movable electrode and the working surface is determined primarily by the static flow rate of the electrolyte and the force bias of the electrode toward the working surface.